



## **On the link between mitigation of and damages from climate change**

**E. Kriegler**, O. Edenhofer and K. Lessmann

Potsdam Institute for Climate Impact Research, Germany (kriegler@pik-potsdam.de / Phone: +49-331-288-2562)

Climate policy has been frequently evaluated by means of cost-benefit analysis, which weighs the benefits of avoided climate damages against the costs of mitigating greenhouse gas emissions. Conventional analyses of this type suffer from several shortcomings in the model formulation, in particular:

- (1) Climate damages are often only deducted from economic output, not from existing capital stock, which would have a more enduring impact on economic growth;
- (2) Economic growth and technological development are often modelled by exogenous assumptions, leading to neglect of the growth enhancing side of mitigation policies which - in essence - shift investments from carbon intensive to carbon free sectors.

In the work presented here, we include various model formulations for the climate damages in an endogenous growth model with resolved energy sector that is capable of capturing shifts in investment structure between fossil fuel and renewable energy sector. This modelling framework is used to conduct a cost-benefit analysis of mitigation policies. The resulting "optimal" mitigation policies will be contrasted with typical results from conventional cost-benefit analyses.